

Excavations in the Medieval City of Trondheim, Norway

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TRONDHEIM, according to tradition, was founded by kings on a virtually virgin site in A.D. 997. Archaeologically, therefore, it is of the greatest importance, for whatever clues its earliest layers contain about the foundation and growth of a town at this time will not be contaminated by pre-existing cultural remains. As the city of St Olav, Norway's king and national saint, its early history is inextricably bound up with the history of the Norwegian nation during the vital early years of the 11th century. In contrast with other medieval cities, it suffers perhaps from too many saga-references, whose interpretation in the past has produced many hypotheses about its foundation and these have in time almost become facts. In this article the author discusses this traditional interpretation of the city's foundation and early development, and suggests the re-evaluation of these hypotheses in the light of recent excavations. In the following account of the excavation where dates have been suggested they must be regarded as tentative, and even the interpretation of the major features is at times conjectural. It is hoped that a detailed analysis of the material will be possible and the results published in due course.

THE HISTORICAL AND GEOGRAPHICAL BACKGROUND¹

NORTH of the great mountain divide of Dovre in central Norway lies Trøndelag, the district where from time immemorial — in other words, probably the migration period — the laws of the Trønder folk applied (FIGS. 1, 2). It is a region of broad, fertile river valleys centred on Trondheim fjord. Southwards, it is linked by routes over the Dovre mountains and down the Gudbrandsdal and Østerdal valleys to the other important lowland area around Oslo fjord and hence to continental Europe. Eastwards, the routes through Swedish Jämtland lead down to the Baltic coastland and to Russia; westwards, the North Sea routes bring the region into contact with the British Isles and Iceland; and there are both land and sea communications to the N. In winter, the fjord does not freeze and the snow-covered uplands and frozen lakes offer overland routes which are not possible in summer.

¹ There is very little background material available in English. The most comprehensive is Frank Noel Stagg, *The Heart of Norway* (London, 1953), but see also P. A. Munch, *Thronhjems Domkirke/The Cathedral of Trondheim*, published by the Norwegian Govt. with dual text (Christiania, 1859).

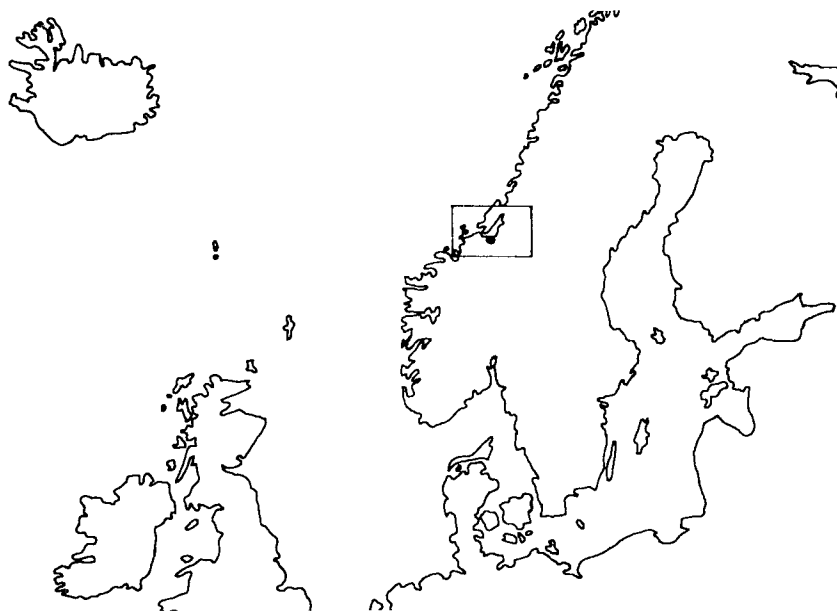


FIG. 1
NW. EUROPE
showing location of area covered by FIG. 2 (p. 1)

Trøndelag was probably first settled from the E., i.e. the Swedish side, and it seems that during the migration and early Viking period it supported a particularly well-organized and egalitarian society: there were eight districts, each with its Assembly or Thing, and in addition there were two important religious centres at Mære and Lade (FIG. 2).

In the second half of the 9th century, the region was threatened by the rich and powerful earls of Hålogoland in northern Norway, and also by Harald Fairhair, whose claim to the throne of a united Norway was established by his victory at Hafrsfjord in the SW. Perhaps by mutual agreement, the Hålogoland earls established themselves as rulers over Trøndelag and moved from Agdenes at the mouth of Trondheim fjord to Lade, from which they exercised a virtually unchallenged rule over the whole country in the second half of the 10th century. To history they are known as the earls of Lade.

During a period of unpopularity Earl Håkon was killed (in 995) and his place was taken by Olav Tryggvason who, perhaps by chance, perhaps by design, had just returned to Norway from England, where his exploits included the battle of Maldon. His saga² tells that he had accepted the Christian faith in the Isles of Scilly, and in his short reign (995–1000) he attempted to introduce Christianity to the Norwegian people.

² Snorri Sturluson, *Heimskringla*; Oddr Snorrason, *Saga of Olav Tryggvason*.

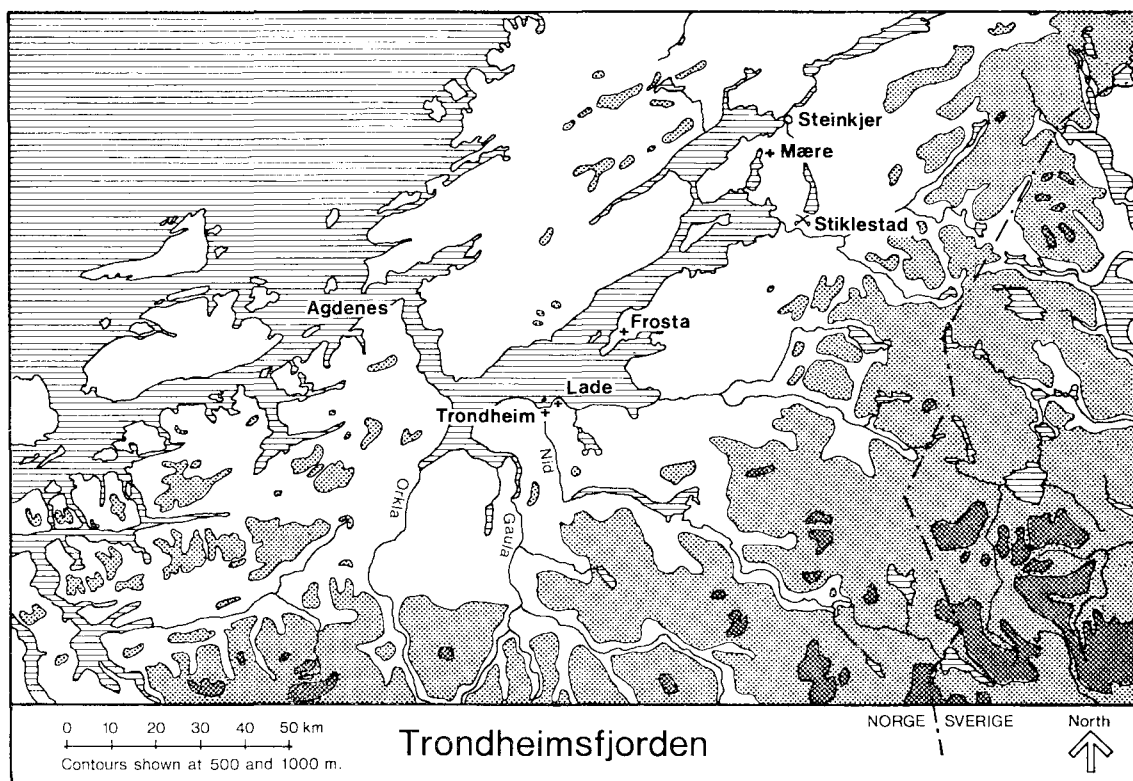


FIG. 2
TRONDHEIM FJORD
showing places mentioned in text (p. 1 f.)

After his death, the earls of Lade in the form of Håkon's two sons, Svein and Erik, resumed power until they were eventually defeated in 1016 by Olav Haraldson, the zealous Christian who was to become Norway's patron saint, and whose relics were to draw so many pilgrims to Trondheim. Of the two earls, Svein was killed by Olav, while his brother joined Cnut in Northumberland.

Olav Haraldson's flight from Norway in 1028 and his death at the battle of Stiklestad in 1030 when trying to regain his kingdom from Cnut were followed by an unpopular interregnum of five years with Cnut's son, Svein, and Svein's mother, Ælfgifu of Northampton, ruling from Trondheim. The troubled period ends with the short reign of Olav's young son, Magnus the Good (1035-47), who was brought back from exile in Novgorod and whose reign was marked by peace with Denmark, and of Harald Hardråde who was killed at Stamfordbridge in 1066. These events are summarized in TABLE 1 (p. 7).

THE TOPOGRAPHICAL BACKGROUND: THE TRADITIONAL VIEW

Of the Viking centre at Lade, a high promontory a mile to the E. of where the R. Nid enters Trondheim fjord, nothing is known (FIG. 3). Nothing of archaeological interest has ever been found there and the exact site has never been located. The promontory offers little in the way of harbour facilities other than a badly sheltered beach where boats could be drawn up.

The mouth of the R. Nid, on the other hand, has many advantages besides shelter and deep water: the river describes a wide arc before entering the fjord and so creates an easily defensible peninsula with a land-connexion only 200 m. wide on the W. side; a shallow beach along the fjord side of the peninsula also allows for vessels to be drawn up; the off-shore island of Munkholmen guards the approaches to the river and offers extra anchorage; and the large lake of Selbu in the upper reaches of the river regulates its flow and lessens the danger of flooding particularly when the winter snows melt. It was on this peninsula at the mouth of the river — and not around Lade — that the town of Trondheim grew up to become in the 11th and 12th centuries the capital of Norway. The alternative medieval name of the town was Nidaros (= mouth of the Nid) which is still used in ecclesiastical contexts today, and Nidarnes is often used to describe the peninsula.

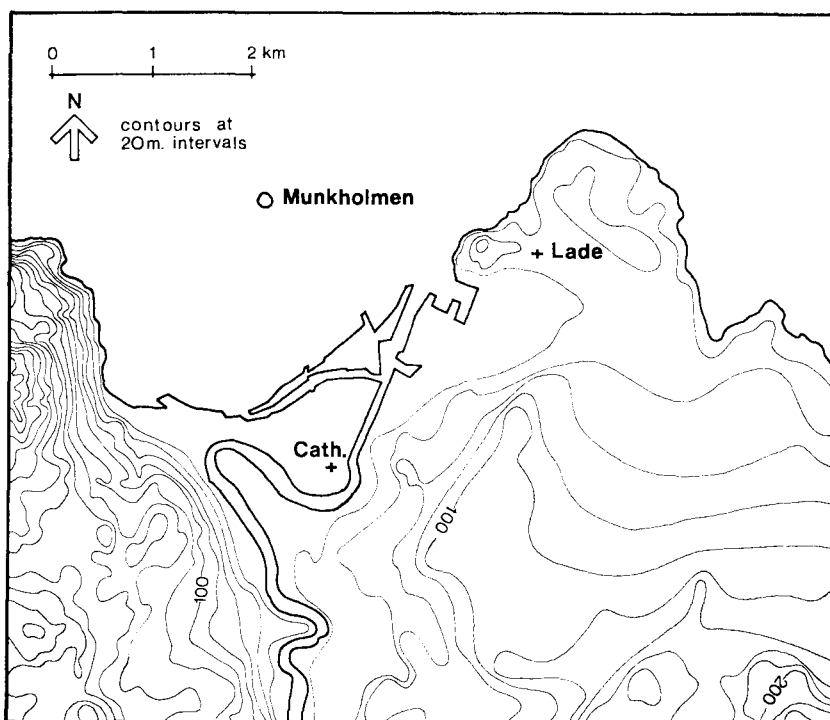


FIG. 3

TRONDHEIM

The relative positions of Viking and later medieval settlements (p. 4)

It is generally assumed that while religious festivals were held at Lade, and later the earls' seat was there, the Thing (*Øreting*) was always held down on the peninsula. The complicated effects of eustasy and isostasy are only now beginning to be investigated — as a direct result of our excavations in 1971 — and an attempt is being made to reconstruct the contours of the peninsula stripped of its ten centuries of occupation material. When this is read in conjunction with a change in sea-level since the late 10th century of, perhaps, 4 m. coupled with a tidal range of well over 2 m., it would indicate that the area of habitable land was much more limited in the late 10th and early 11th centuries than hitherto supposed. For example, the site usually accepted as the Thing-place would almost certainly have been below sea-level.³ It is also generally assumed that no permanent settlement had been attracted to the peninsula, so that when the town was founded at the very end of the 10th century, it was on virgin soil. Lade at this point slips into oblivion.

The evidence for the foundation of the town has been taken mainly from the saga material.⁴ The most detailed account is by Snorri Sturluson, who attributes the foundation to Olav Tryggvason (c. 997) who established a trading centre (*kaupstaðr*) on the peninsula, and possibly built his royal palace and a church there.⁵ Both the contemporary *Fagrskinna* and the earlier Oddr Snorrason's saga also credit Olav Tryggvason with the founding of the town, although Oddr implies that he resided at Lade.⁶ The *Ágrip af Nóregs Konunga Sögum* and the Latin *Historia Norvegiæ* are much more terse in their account and say nothing about the town's foundation, while the strange Latin history of Theodoricus Monachus, supposed by many to have been written by a Trondheim monk, implies that merchants had already settled at Nidaros before Olav Tryggvason arrived.⁷

The sons of Earl Håkon, who resumed power between the fall of Olav Tryggvason in 1000 and the arrival of Olav Haraldson in 1015, abandoned Lade altogether in preference for Mære,⁸ and the settlement on Nidarnes partly fell into decay until it was reoccupied by Olav Haraldson who built (or rebuilt) the church, which was dedicated to St Clement, and the royal palace.⁹ Snorri attributes to both kings the act of laying out properties for their men, which has been interpreted as an early example of town planning by royal decree.¹⁰

To Magnus the Good (d. 1047) is attributed the building of a new palace, including, incredible though it may seem, a stone hall, and a second church in which his father's holy remains were to be more suitably housed.¹¹ Harald

³ Cf. Blom (1956), 224 ff. (For abbreviated references see p. 31). The relationship between the *Øreting* and the more important Frostating is discussed by Jørn Sandnes in 'Trøndelags eldste politiske historie', *Historisk Tidsskrift*, XLVI (1967), 1–20 (English summary, 19–20).

⁴ For the editions used see bibliography (p. 31).

⁵ Snorri, *Heimskringla*, Prologue; id., *Olav Tryggvason's Saga*, ch. 70.

⁶ Oddr Snorrason, A text: ch. 27; S text: ch. 24, 42.

⁷ Theodoricus Monachus, ch. 10.

⁸ e.g. Snorri, *Heimskringla*, *St Olav's Saga*, ch. 41. Steinkjer was the nearest town to Mære.

⁹ Ibid., ch. 53.

¹⁰ e.g. Erik Lundberg, 'Town-building in Scandinavia before the Time of Lübeck', *Archæologia Lundensia*, III, *Res Mediævalis* (Lund, 1968), 205–16.

¹¹ Snorri, *Heimskringla*, *Harald Hardråde's Saga*, ch. 38. The shrine is described in id., *Magnus the Good's Saga*, ch. 10.

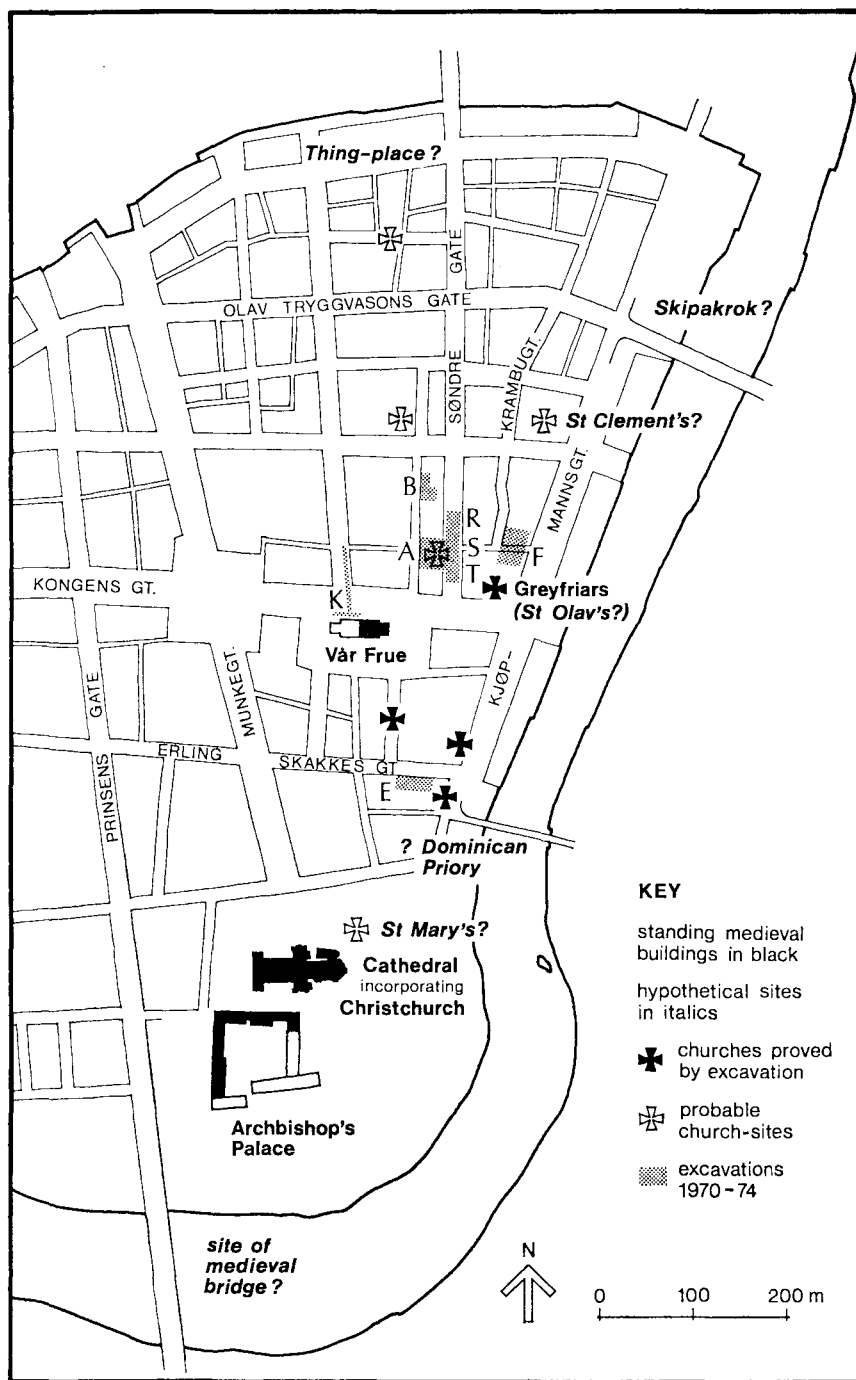


FIG. 4

TRONDHEIM

Location or presumed location of some medieval features and of sites excavated 1970-74 (pp. 7 f., 10 ff.)

Hardråde completed this St Olav's Church, converted the unfinished hall into a church dedicated to St Gregory, and built himself a new palace and yet another church, dedicated to St Mary.¹² It was Harald's son, Olav Kyrre ('the Gentle') (1066-93), who built the great minster of Christ Church where the saint's remains were finally placed and which later became the Cathedral.¹³

TABLE I
SUMMARY OF HISTORICAL EVENTS

Håkon, earl of Lade	967-995	Rules from Lade.
Olav Tryggvason	995-1000	Rules from Lade?, 'founds' Nidaros (Trondheim).
Svein and Erik, sons of Håkon, earls of Lade	1000-1016	Rule from Steinkjer/Mære.
Olav Haraldson (St Olav)	1015-1028	Re-occupies Nidaros, builds palace and St Clement's Church.
Svein, son of Cnut and Ælfgifu	1030-1035	In Nidaros.
Magnus the Good, son of Olav Haraldson	1035-1047	Re-sites palace with a stone hall, begins St Olav's Church.
Harald Hardråde, half-brother of Olav Haraldson	1046-1066	Re-sites palace, builds St Mary's Church, completes St Olav's Church, converts hall to St Gregory's Church.
Olav Kyrre, son of Harald	1066-1093	Builds Christ Church.

This remarkable series of events, involving the building of three separate royal palaces and five churches during the first fifty years of the town's existence, is based entirely on an interpretation of the saga-evidence, mostly taken from Snorri's *Heimskringla*, worked out in the 19th century and never seriously challenged.¹⁴ It is necessary here to consider in detail the supposed location of the monuments (FIG. 4).

Unfortunately, almost nothing from the medieval period survives, not even the street pattern; for Trondheim was a town in which wood was used not only for houses, churches and monasteries, but also for the paving of streets and courtyards, and it was destroyed by fire several times. During the 14th century it went into a terrible economic decline. Only two of its dozen or so churches were still standing after the Reformation and even the Cathedral was partly in ruins after the fire of 1531. Finally, the disastrous fire of 1681 reduced the city completely to ashes for the third time in less than a century, and when it was rebuilt it was to an entirely new street plan, the work of the Luxembourg-born General Johan Caspar von Cicignon (FIG. 5, below).

The early street plan together with whatever clues it may have held of the medieval city's early topography was totally obliterated by the 1681 fire. There remained only Vår Frue Church (later much enlarged), the half-ruined Cathedral, and the fire-damaged Archbishop's Palace which had been converted to civil use after the Reformation. Some eight maps of the city, all from just before the 1681 fire, are known (FIG. 5, above).¹⁵ There also exists an engraved prospect of the city

¹² Ibid.

¹³ Snorri, *Heimskringla*, *Olav Kyrre's Saga*, ch. 6; id., *King Inge's Saga* (saga of the Sons of Harald), ch. 23.

¹⁴ There has been surprisingly little local historical research. It always uses the 19th century as a starting point, cf. Mathiesen (1892) and (1897); Berg (1951) and (1964); Blom (1956); Fischer (1966); Lundberg, op. cit. in note 10.

¹⁵ Kavli (1966), 27 ff.

dated 1674 but almost certainly incorporating an earlier engraving.¹⁶ Up to 1970, four medieval churches had been located by excavation, and the sites of four others suspected from finds of human skeletal material (FIG. 4). One of these suspected sites has now been excavated. None of the churches has been satisfactorily identified.

On the basis of the sagas, the 17th-century maps, the few known church-sites and the scanty medieval documentary evidence, various attempts have been made to reconstruct the original plan of the city with its three separate royal palaces, and its subsequent development down to c. 1300.¹⁷ Firstly, there is Olav Tryggvason's and Olav Haraldson's site which Snorri says lay '*upp frá Skipakrók*'.¹⁸ Many have tried to localize this feature — in one case using the lack of evidence from an early excavation.¹⁹ It has generally been accepted, however, that the first properties were laid out along the river-bank very near its mouth, and the discovery of human burials, though not of a church, has provided the site of St Clement's, the first church, and *ipso facto* the first royal palace. Much of this area was disturbed during redevelopment in the 1950s.

Snorri tells us that, when Olav's body was secretly brought back to Nidaros after the battle of Stiklestad, it was hidden in a derelict house above the town and that later Magnus the Good chose this spot for his St Olav's Church.²⁰ When the first medieval church ruin came to light in the 19th century under the Town Hall (now the public library) it was claimed to be St Olav's and was thus connected with the Olav legend.²¹ The arguments put forward at the time do not hold. Surviving documents tell that the church belonged to the Greyfriars,²² though not that it was dedicated to St Olav. After 1309, the church of St Olav is mentioned in testaments together with the monastic houses, thereby indicating (it was argued) that it, too, had become a monastic church. As all the other orders were accounted for, it must have been given to the Franciscans, who are supposed to have reached Trondheim c. 1300.²³ Yet St Olav's Church appears in a later will amongst the town's parish churches again²⁴ and there is, moreover, no good evidence for a Franciscan foundation before the end of the 15th century.²⁵ Maybe St Olav's did

¹⁶ Illustrated in Berg (1951) and Kavli (1966). The arguments against it being a simple engraving from 1674 were presented in a lecture to the Trondhjems Historiske Forening 14/3/74 (fully reported in *Adresseavisen* 15/3/74).

¹⁷ Especially Mathiesen (1897); Blom (1956); Berg (1964), where he draws comparisons with Dublin.

¹⁸ Snorri, *Heimskringla*, *Olav Tryggvason's Saga*, ch. 70.

¹⁹ Mathiesen (1897), 245 ff.

²⁰ Snorri, *Heimskringla*, *Olav Tryggvason's Saga*, ch. 38; id., *St Olav's Saga*, ch. 238, 245.

²¹ O. Krefting, 'Undersøgelser i Trondhjem', *Forening til Norske Fortidsmindesterkers Bevaring* (Kristiania, 1890).

²² Norske Rigsregistrarer, I, 269. Also Mathiesen (1945), last chapter.

²³ Christian C. A. Lange, *De Norske Klosters Historie* (2nd ed., Christiania, 1856), 235–8.

²⁴ D.N., v, 597, 656; xiv, 231 (quoted in Blom (1956), 520).

²⁵ The earliest references given by Lange (see note 22) is a letter dated 'Nidaros, 22nd April 1313' where *Botolphus ordinis fratrum minorum* is one of the witnesses: he is more likely to be from Bergen. (The reference is D.N., III, 99, not II, 99.) The next reference is a testament of 1381 (D.N., II, 468) which mentions brother Olaf *nidr at brædr*. Lange takes this to imply the Friars Minor, but it could equally well be the Dominicans. There is otherwise no mention of the Greyfriars in the will, whereas all the other houses, including the Dominicans, are mentioned. Lange's third reference is to a Johannes Nikolai, *minorittermunk fra Nidaros*, who enrolled at Rostock University in 1466, but at the same time paid the fee from which he would have been exempt. These are the only references to the Franciscans in Trondheim before the end of the 15th century. It seems strange that they were not established here, but it would be stranger if they were established and had left no evidence.

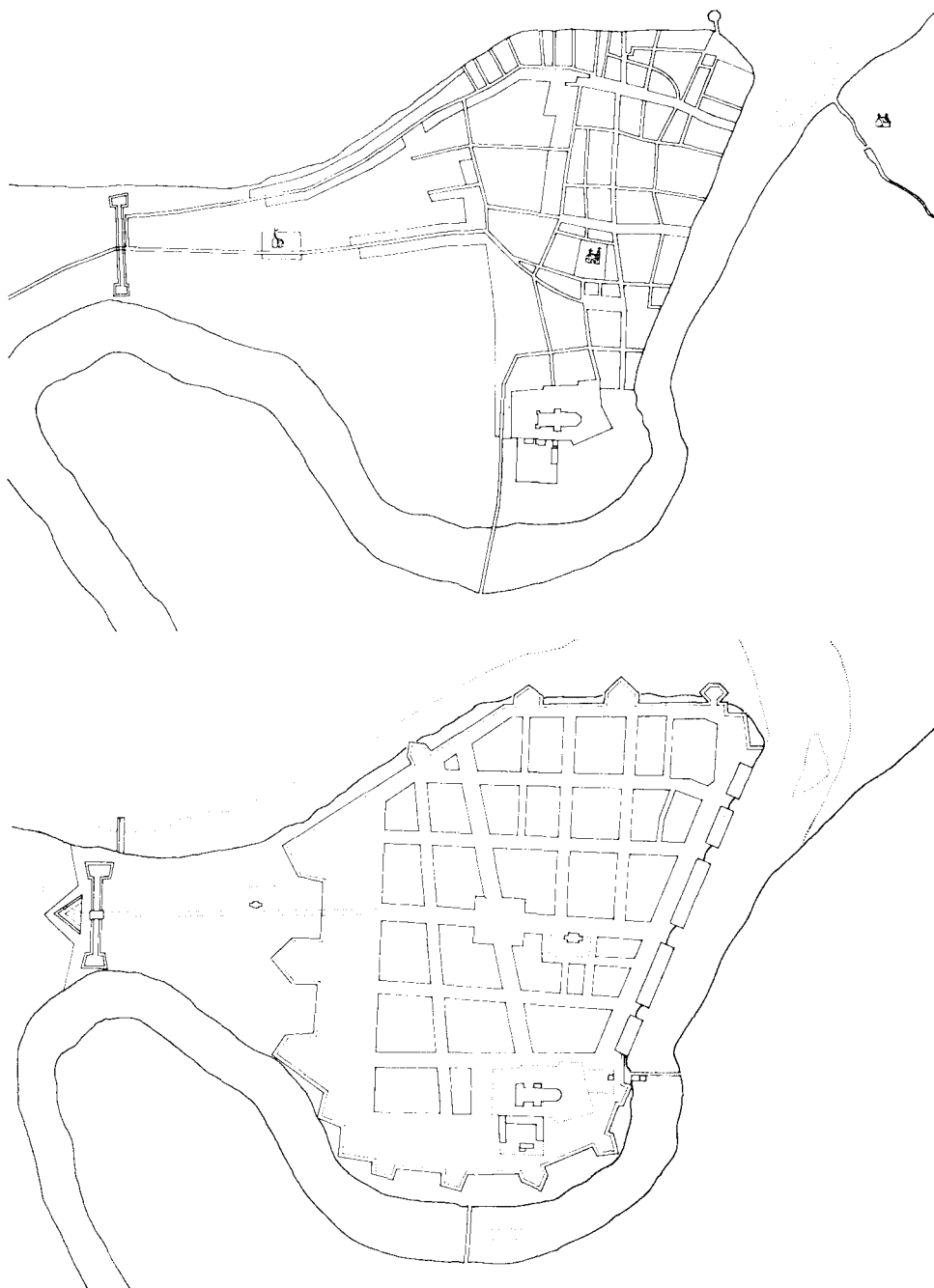


FIG. 5
TRONDHEIM

Above, late medieval street pattern, based on Nauclet's map of 1658 (University Library, Helsinki);
below, Cicignon's plan for rebuilding after fire of 1681 (p. 7)

become the Greyfriars' church, but the evidence has yet to be found. Nevertheless, the church ruin under the library has been known for the past century as St Olav's, founded in the 11th century by Magnus the Good. And the nearby church, whose site was suspected from finds of skeletal remains — and which has now been excavated — was claimed as St Gregory's, the unfinished stone hall completed as a church by Harald. Magnus's palace was thus located. With Cicignon's new street plan in 1681, much of the area became sealed under the new Søndre Gate.

It is Harald's site which eventually brings us to the highest point of the peninsula, an area which, one might think, would have been the first to be taken into use. According to Snorri, Harald's own church of St Mary was built where the saint had been first buried and where a fair spring had welled forth.²⁶ Its site is thought to be just NE. of the Cathedral, now part of the churchyard.²⁷ But Olav Kyrre chose exactly the same spot for his Christ Church (the core of the present Cathedral),²⁸ and local tradition has a third site for the saint's grave — a spring down on the river-bank, which sounds more plausible since the body was, it says, secretly buried in a sand-bank and not prominently interred on the hilltop.²⁹

Before the current series of excavations began, therefore, the town's foundation, its original plan and its rapid development up to 1066 were not in question. The only doubt that remained was to what extent the town had been laid out by royal command, or had simply been allowed to grow up. However, the excavations since 1970, which have included the church thought to be St Gregory's and therefore part of Magnus's palace complex, have raised many questions about the traditional interpretation.

THE EXCAVATIONS: A SUMMARY OF RESULTS

Up to the mid 1950s there had been an amount of archaeological excavation in Trondheim though none of it has been published.³⁰ Information has been systematically collected at the museum, and recently a more thorough collation of all information, including newspaper reports, has been made by Øivind Lunde who has plans to publish his work.³¹

It appears that medieval excavation has usually consisted of removing material in arbitrary horizontal layers, planning the more complete structures and recording the finds according to depth. A predetermined chronology based on the recorded town fires simplifies the process³² and material between 'fire-layers' is often described as 'homogeneous fill'. Finds are often dated simply according to

²⁶ Snorri, *Heimskringla, Harald Hardråde's Saga*, ch. 38; id., *St Olav's Saga*, ch. 238, 245.

²⁷ Krefting, op. cit. in note 21, 4-5.

²⁸ Snorri, *Heimskringla, St Olav's Saga*, ch. 245; id., *Olav Kyrre's Saga*, ch. 6.

²⁹ Henr. Mathiesen, 'Olafsbrønden i Throndhjems Domkirke', *Historisk Tidsskrift*, 3rd series, 1 (1890), 165-77, 384.

³⁰ Internal reports have usually been filed at the Central Office of Historical Monuments (*Riksantikvaren*), Akershus Festning, bygn. 18, Oslo, or at the museum (D.K.N.V.S., Museet), Trondheim.

³¹ The work forms part of a higher degree course at the University of Lund, Sweden.

³² Cf. Bergen (A. Herteig, 'The Excavation of "Bryggen"', *Medieval Archaeol.*, III (1959), 177-8). According to Kavli, the first fire in Trondheim to be described in print was in 1651, and there is some confusion about the earlier town-fires, the first of which is usually taken to be in 1328. See Kavli (1966), 27-8 and footnote p. 323.

the fire-layers. Needless to say, the excavations in the current series are being conducted as far as possible on a stratigraphic basis, and the eventual chronology will depend on a total consideration of all the material: structures — complete and fragmentary —, objects, documentary evidence, etc., as well as the excavated evidence for catastrophes, both recorded and unrecorded.

Street improvements in 1970 included the resurfacing of Søndre Gate, one of the new streets which had been laid out in 1681 regardless of existing property boundaries, street alignments, etc., which thus became sealed below its surface. Permission was given for the removal by machine of the upper post-Reformation layers and their replacement with a firmer bed of sand.³³ It was not clear until work had begun how relatively shallow these upper layers were, nor how thick and rich the underlying medieval occupation was, and in the short time taken to stop the work a good deal was unfortunately lost.

A short emergency excavation of the partly destroyed area was hurriedly organized (Site R) (FIG. 4) and plans were made for a systematic excavation the following summer of the remaining part of the street (Sites S and T), an operation which had to be done in two stages so as not to cut off the town's main fire-station for six months. In addition, two adjacent sites which were also ready for redevelopment have been excavated (Site B in 1971 and Site A in 1972–3) and work has now begun and will continue on the large site for the new public library — an area which includes the ruins of 'St Olav's Church' (Site F). Of the other smaller excavations which have also been carried out since 1971, Site E in Erling Skakkes Gate proved unexpectedly fruitful.³⁴

SITE R (FIG. 4; PL. IV, B)

The rescue excavation of Site R in May and June 1970 produced a series of features whose interrelationships were for the most part destroyed. Extra importance was therefore given to the drawing of the two long sections along either side of the bull-dozed area in the hope of establishing some sort of sequence for the scattered information. No doubt when everything is finally correlated, a more meaningful picture can be drawn.

One of the earliest buildings, very tentatively ascribed to the early 11th century, was a house of *laft* construction,³⁵ whose floor showed evidence of repair. It

³³ The Norwegian Law relating to Ancient Monuments (1951) automatically protects all pre-Reformation material: any proposed development which may affect prehistoric or medieval remains must first be reported.

³⁴ Excavation is carried out under the ægis of the Central Office of Historical Monuments (*Riksantikvaren*) and finds will eventually be stored at the museum in Trondheim. As required by law, the work is financed by the various site-developers (Trondheim City Council, Forretningsbanken A/S, Trondhjems Sparebank, and the Telegraph Co.) with assistance from the State (Dept. of the Environment). Nevertheless, the help and co-operation offered by these various institutions in Trondheim has often surpassed that required of them by law, and for this I am extremely grateful.

³⁵ In describing the log-cabin or blockhouse construction which was and is so typical of timber architecture in Norway, I have chosen to use the Norwegian word *laft*, which anglicizes very easily into both noun and verb (*laft*, *lafted*). The walls are constructed of logs laid horizontally and deeply notched at the end, so that they fit tightly together at the corners. In its simplest form, the notch is cut only in the upper side of the beam and is therefore half the thickness of the log (PL. II, Λ). The more complex forms involve carefully shaped notches in both the top-side and under side of the beam. See Herteig, *op. cit.* in note 32, fig. 66. Also G. Bugge and Chr. Norberg-Sculz, *Stav og Laft (Early Wooden Architecture in Norway)* (Oslo, 1969) with Engl. summary.

overlay remains of an earlier structure. The loose debris which had collected on the floor included the removable floor-board of a small boat and a decorated piece of wood 19 by 32 cm., which had originally formed a chair-back or part of a chest (PL. IV, B). The decoration in Urnes style consisted of narrow interwoven bands carved in low relief and the stylized foot of at least one animal can be recognized. It is not well finished: the centres of the loops are not always carved out and the carver clearly shows signs of indecision or change of plan.

Also to the medieval period are assigned the remains of a long palisade with posts up to 15 cm. in diameter, a large fallen hurdle or wattle wall-section, and several other constructional elements, posts, etc., which have not yet been placed in any meaningful context. Layers of moss up to a metre thick and covering several square metres were also recorded.

The post-Reformation features included a well, which could be assigned to the town's first recorded apothecary's shop,³⁶ established in 1661, and a wooden cellar of a house which must have stood on the N. side of the vanished late medieval thoroughfare known as Øvre Almenning. This 26 m. wide street was laid out over presumably requisitioned properties after the fire of 1598, as an early attempt by King Christian IV to 'open up' the city and reduce the fire-risk.³⁷ That this was not enough is shown by the fact that in 1651 and again in 1681 Trondheim was once more destroyed by fire.

SITES S AND T (FIG. 4; PLS. I, II, B)

The earliest levels in the 1971 extension (Sites S and T) produced 'fences' made up of rows of stakes, and 'hedges' consisting of juniper branches woven between closely set posts, apparently enclosing small, irregular areas (PL. I, c). The wood, even the small twigs and leaves, was well-preserved, and this is generally so throughout the excavations, except in the vicinity of stone structures or where the underlying natural is sand, and not silt or clay. On Site B, therefore, these same early features were recognized in the deepest layers, but only as shadows in the sand.

Site T also produced a small square structure, c. 2.5 m. square, with four stout corner posts and fragmentary wattle walls. This has tentatively been interpreted as an elevated store-house, the space beneath which was utilized for keeping animals or for storing moss. Frequent — perhaps annual — cleaning out of the area caused it to have a sunken floor, but the structure cannot plausibly be interpreted as a sunken hut; nor did the contents of the moss suggest a muck-cellar.³⁸ At least three such structures, probably successive, were located here, and similar structures were found in the lowest levels of Site E. In two cases there was an underlying layer of small irregular stones and beside another was possibly the remains of a stair. Fragmentary remains of other buildings constructed with the simplest type of laft³⁹ and with the sill-beam resting directly on the ground also belong to this earliest phase.

³⁶ Berg (1961), 236.

³⁷ *Ibid.*, 73 ff.

³⁸ The organic material is being analysed in Trondheim by Philip Tallentire.

³⁹ See note 35.

Another most interesting feature was a drain or channel, the sides of which consisted of branches woven between upright stakes (PL. I, B). It was neatly covered with logs, many of them used secondarily, and often with holes or notches to fit over the stakes. The logs were in turn covered with a layer of juniper roots and branches. Where the feature disappeared into the baulk at one edge of the site, the cross-logs were replaced with five longer trunks laid longitudinally. In the course of time, the whole feature had become compressed so that the stakes not only stood higher than the logs with which they had at one time been level, but even penetrated through the floor of the later building which lay above (PL. I, A). This sinking and distortion of features was common everywhere and, if the wood had not been preserved, structures could easily have been misinterpreted.

Finds from these lowest layers were very few, consisting mainly of objects of wood or soapstone, and occasionally leather and textile.

According to tradition, the earliest possible date for this first phase of occupation should be the closing decade of the 10th century.⁴⁰ The earliest layer on Site A, however, produced a comb which could be mid 10th century and a very badly corroded gilt-bronze belt-end decorated in what appears to be Borre style.

Overlying the channel was one of the most complete buildings to be excavated: a 'hearthroom-house' (Norw. *årestue*) or hall, consisting of a large room at least 5 m. square with a rectangular hearth lined with upright stones in the centre, and two smaller rooms at each end (PL. I, A). The wooden floor-boards were fixed with wooden plugs to the joists which lay directly on the ground and were in no way attached to the side walls. The corners of the building were unfortunately damaged by later structures but the house appeared to have been built with horizontal wall-logs slotted into the corner-posts (PL. II, B): the ends of the logs were wedge-shaped to fit into the vertical channels in the upright posts (Norw. *slepvegg*; Swed. *skiftesverk*; Dan. *bolhus*). The sill-beams were supported on buried foundation posts. At each end of the main room were two small chambers, one of which was probably an entrance-room, while in another was the supporting post for a wall-bench or bed. No thresholds were recognized. The floor around the hearth was charred but there was no evidence that the building had been destroyed by fire. Direct dating evidence was again lacking, but an 11th-century date is most probable.

The site was later occupied by at least three successive buildings, all smaller and probably not dwelling-houses. One of them was lafted⁴¹ and yielded interesting details of the door construction — always a difficult problem in such a building because of the threat to its stability.

Fifteen metres to the N. lay a timber building of which only a metre projected into the trench. It was also lafted, and in the sill-beam was a well-preserved scarf-joint, where a verandah with a wooden floor (Norw. *sval*) had been built on to the E. side. Internally, there was evidence for two rooms, one with a wooden floor, the other with stone flags. A vertical slot in the inner face of the wall-logs

⁴⁰ See above p. 5.

⁴¹ See note 35.

indicated the presence of an internal dividing screen. Whether this building, together with the hall to the S. and another large timber building to the E., formed a unit around an open courtyard is impossible to say at this stage. It was clear that at a later date the whole area had been taken over and used as the site for a church and its graveyard.

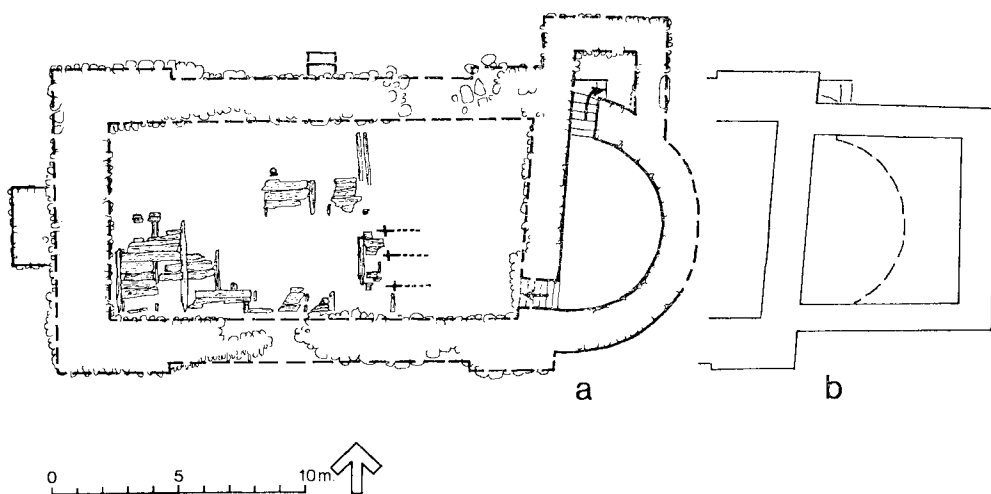


FIG. 6
CHURCH IN SØNDRE GATE, TRONDHEIM
possibly St Gregory's: excavated 1971-4 (pp. 14 ff.)

The Church (FIGS. 4, 6; PLS. III, A-B, IV, A)

The site of the church had been suspected from the chance discovery of human bones in the area, though its exact position was not known. Tradition maintains that it was the 11th-century church of St Gregory, the alleged history of which has been considered (pp. 7, 10). If this is so, then it is difficult to understand the 2 m. thick layer of occupation material, including at least five building-phases, which had accumulated here before the church was built. Either these pre-church layers take us further back in time, and indicate that the city, contrary to the saga-tradition, was well and truly in existence before Olav Tryggvason arrived; or else the church is later than the mid 11th century. In the latter case, either Snorri has got the history of the church wrong, or else he has been misinterpreted and is, in fact, describing another building somewhere else in the city.

Until the finds from the early occupation layers have been thoroughly studied, it is not possible to say how early these timber buildings can be. My working hypothesis is that the area was taken over and the church built at the beginning of the 12th century. In addition to the dating problem, there is no sign of an earlier unfinished secular phase to the church, which is also implied by Snorri.⁴²

⁴² Snorri, *Heimskringla*, *Harald Hardråde's Saga*, ch. 38.

The original ground surface here dropped steeply from W. to E. On the higher ground to the W., little of the pre-church phase had been preserved in the sandy subsoil, except for a shallow ditch and some doubtful post-holes. It is also quite likely that material had been removed from here in an attempt to level up the site before the church was built. On the low-lying area to the E., however, with its clay subsoil, the wood was well-preserved, and the timber buildings described above should, in due course, provide many answers to this problem-area.

The church had been built in three stages, the first consisting of the eastern part of the nave and an apsidal chancel with a crypt below (FIG. 6, a). The nave and chancel were the same width, but there may have been an external buttress where the two parts joined. A flight of steps led down to the crypt from the SE. corner of the nave and a second flight led up from the crypt to the N. The foundations of the nave here were all but destroyed by the building of a stone cellar in the 18th century, but the crypt escaped damage and even part of its half-dome vault had survived. The foundations of this first phase consisted of large beach-boulders packed into a trench which had been dug through the earlier occupation layers and down into natural (PL. III, B).

The next stage was the continuation of the N. wall of the nave for two or three metres so that the N. door could be erected. The foundations for this part were made of alternating layers of slabs and blocks and did not go so deep, perhaps because of the rising ground and the thinning occupation material. Finally, but perhaps still within the first decades of the 12th century, the W. front was completed. The foundations here were even shallower, but were over 3 m. wide, and consisted of two courses of flattish blocks set on edge, the upper course leaning in the opposite direction from the lower, and a third course of neatly laid beach-boulders. Packed between the courses was a thick layer of crushed soapstone, and soapstone blocks, including at least one dressed stone, had been used in the foundations. The change in foundations and their extreme width at first gave rise to a number of theories about an elaborate westwork or narthex, but the most likely explanation is the appointment of a new builder, or perhaps the inclusion of stairs or a passage within the thickness of the wall here (PL. III, A).⁴³ There was an entrance from the W., presumably from a N. and S. street, whose existence in the middle ages has been deduced from the pre-1681 maps.

A side-chapel or sacristy, also with herring-bone foundations, was added to the N. side where the steps came up from the crypt. There was no evidence for an equivalent addition on the S. side, nor for a S. door in the nave, though the latter is not necessarily excluded.

At a later date, probably about the beginning of the 14th century, the apsidal chancel was taken down and replaced with a roomier square chancel (FIG. 6, b), a little narrower than the nave, in keeping with the other medieval churches which have survived in Trøndelag. The side-chapel had already been removed, but the vaulted crypt was retained and continued in use, an iron door

⁴³ I am extremely grateful to Christopher Hohler, Courtauld Institute, for his stimulating help and encouragement both here and generally in my work on medieval Trondheim.

being later added at the foot of the N. steps: it was found lying under the demolition rubble (PL. III, B). The new chancel was therefore built partly over the existing crypt, partly on new foundations.

Inside the church, the eastern part of the nave was destroyed by a modern cellar and the north-western quarter was disturbed by 18th-century rubbish-pits. However, in the south-western quarter, the wooden floor was intact, but burnt, below a thick layer of rubble and mortar left behind when the building was demolished and the stone removed. There was a narrow strip of undisturbed deposits extending across to the N. wall in between the 18th-century disturbances. There were also three burials within the church which seemed to post-date its demolition.

The graveyard showed signs of intense use everywhere, except to the E. where there were relatively few graves, laid in two neat rows, the second of which was scarcely begun. No graves were cut by the chancel extensions, but one of the early graves on the N. side was cut by the sacristy foundations. Of all the graves excavated, more than a third were infants, the majority of whom were in coffins. Most of the adults, on the other hand, had been buried without coffins — in one case, lying prone. The wood was remarkably well preserved, and all the coffin-material has been conserved. Only wooden nails were used and there was no evidence for other than flat lids, some of which were decorated with incised crosses. In two cases the bottom of the coffin consisted of five or six cross-slats;⁴⁴ in another case the sides of the coffin were lacking — the flat lid and base were held apart by long wooden plugs. A number of the very small infant coffins were hewn from a single block of wood, and in two or three cases infants were simply covered with a short plank. One of the earlier graves was lined with stone slabs, and fragments of two stone grave covers were found, one with a floriate cross, the other with an inscription beginning: *Her hvil[er]* . . . (here lies . . .).

Half a dozen burials were accompanied by long staffs of hazel which were placed either in or under the coffin, or lay either with or under the coffin-less burials. There had been no attempt to form runic letters with the hazel-wands.⁴⁵ Three adults were buried with a small silver or pewter cross. No coins were found either in the church or in the churchyard.⁴⁶

Whether the church was still in use at the time of the Reformation is unknown and, until it has been satisfactorily identified, it is difficult to make use of documentary evidence. St Gregory's, incidentally, is last mentioned in a testament from 1381, while the neighbouring Greyfriars most likely continued in use until the Reformation — it passed into private hands in 1559.⁴⁷ Neither church would have escaped the 1531 fire, which also caused much damage to the Cathedral, and in

⁴⁴ Similar coffins were found in Lund: R. Blomqvist and A. W. Mårtensson, *Thule-grävningen 1961* (Lund, 1963), ch. 3, 5.

⁴⁵ Ibid. Also note on excavation at Northampton in 'Medieval Britain in 1970', *Medieval Archaeol.*, xv (1970), 140.

⁴⁶ I understand that there was a folk tradition of slipping coins between the floor-boards of a church. During the restoration of the stave-church at Lom in Upper Gudbrandsdal in 1972, Håkon Christie found 2,250 coins: *Vern og Virke 1973* (Riksantikvarens årsberetning), 99.

⁴⁷ D.N., II, 468; Rigsregistranter, I, 269.

1552, the Crown gave permission for stone from the town's derelict churches to be used in repair work on the Cathedral.⁴⁸ This may explain the very thorough robbing of stone from the church in Søndre Gate: very little apart from small rubble and mortar was left.

One of the stones that was not taken was a large fragment of a tympanum (PL. IV, A). It is of soapstone and would originally have measured c. 60 cm. in radius and 10 cm. in thickness: a little less than half survives. The surface was divided into two by a tree with curving and looping branches which terminate in rosettes or leaf-scrolls. In the surviving left-hand half stands a figure, one foot firmly placed in front of the other. He is holding something up in front of his chest with his right hand, while the left reaches down between the branches to clasp the top of a looping branch as if it were a shield at rest. Two goats or rams peer out, one biting a branch, the other nibbling a flower. The style and the way the carving is deeply executed in the soapstone block are typical of a Trondheim school of sculpture which was probably active at the end of the 11th and during the first half of the 12th century.⁴⁹ It has links with the Urnes carvers on the one hand and N. Britain on the other. I suspect that the tympanum was originally over the N. door which I have suggested was erected soon after the chancel and crypt were finished.

Most of the other examples of the school came to light during restoration work in the Cathedral in the 1880s. They had been incorporated into the fabric presumably during the 16th-century repair-work and must therefore originally have come from the disused churches in the town.⁵⁰ The discovery of the tympanum fragment in Søndre Gate strongly suggests that at least some of the other fragments must originally have come from this church.

Another important stone found in the demolition layer was a dressed soapstone block with a stone-mason's mark. This mark also occurs frequently in the Cathedral in those parts usually ascribed to the period 1180–1235.⁵¹ But it also occurs in the little chapel of St Mary and St Hippolytus in the N. transept which was supposedly finished soon after 1161.⁵² Our mason could have been active, therefore, from the 1160s and either his mark or some of his work continued to be used for a while after his death. One can hardly date the Søndre Gate church from a single mason's mark but a mid 12th century date for the completed first phase would not be unreasonable. 13th and 14th-century English green-glazed ware was found in the graveyard, including both Scarborough and Grimston-type face-mask jugs.

Subsequent to the stone-robbing of the 1550s and 1560s, the site must have lain open until it was used to form the basis of the broad thoroughfare known as

⁴⁸ Rigregistranter, I, 152, 602 (quoted in Berg (1951), 71).

⁴⁹ Forthcoming article in *Ikonografiske Post*. I am grateful to Erla Hohler, Oldsakssamlingen, Oslo, for her helpful comments on the tympanum fragment.

⁵⁰ Fischer (1966), 549 ff; Mathiesen (1903), 69, 72; see also M. Blindheim, *Norwegian Romanesque Decorative Sculpture 1090–1210* (London, 1965).

⁵¹ Fischer (1966), 536–40. It corresponds to no. 56 in Dorothea Fischer's catalogue of stone-masons' marks from the Cathedral.

⁵² *Ibid.*, 534.

Øvre Almenning, Christian IV's attempt to create a 'fire-break' in the city after the 1598 fire. Under Cicignon's new plan of 1681, however, Øvre Almenning disappeared — partly beneath the new Søndre Gate, partly beneath new properties, whose cellars and rubbish-pits caused much damage, as we have seen, to the buried ruins.

The town-mansion which was subsequently built on this site⁵³ was of such architectural interest that when the site was to be redeveloped by Trondhjems Sparebank, it was decided to preserve it and re-erect it in another part of the city. The new site (Site E) was in Erling Skakkes Gate, in an area where the medieval material had not previously been disturbed, and so by law had to be excavated. The area proved much richer than expected: after 1681 it had been part of a large garden and apart from two cesspits, it had escaped disturbance until a house with a small cellar was built at the end of the 19th century.

SITE E (FIG. 4)

The earliest level of the site produced two boundary ditches, a rough cobbled area and an almost bewildering variety of post-holes and stake-holes. The stakes seem to form fences between small areas in the same way as on Sites S, T and B, and many of the post-holes can be seen to belong to rectangular buildings. At some point during the 12th century, if not before, the boundary ditches had been boxed in and a wooden pavement laid over the top. With continuous repair and maintenance of these passages or alleys, the stocks and planks had built up to a height of 2 m. in one place. The property between the two passages was from 5 to 5.5 m. wide and contained a variety of buildings including moss-storage bins and a dwelling house with a fireplace or oven placed against the side wall. It appears that one of the passages later went out of use and a house was built over the amalgamated properties.

The eastern and western limits of these properties are difficult to fix. It is not impossible that eastwards they reached right down to the river-front, in which case they would no doubt have terminated in warehouses and a quay. The pre-1681 maps indicate that a major N. and S. street crossed the site of the excavations, but this was not found in the post-Reformation layers. As these were mostly removed by machine, however, it could have escaped recognition, especially if it were not paved with wood or cobble-stones. But it clearly had not existed in the medieval period, and it must either be a new thoroughfare of the 17th century — perhaps part of Christian IV's work after the 1598 fire —, or a new alignment of a medieval street which has so far escaped detection. The former seems the more likely and once again a disused church and churchyard may have formed the basis for the new street, for immediately adjacent to the site in Erling Skakkes Gate are two of the known medieval churches, and probably the Dominican Friary (FIG. 4). Nothing is known of the post-Reformation history of any of these sites. It has been suggested that they passed into private ownership like the Greyfriars,⁵⁴

⁵³ Kavli (1966), 124 ff.

⁵⁴ Berg (1951), 71.

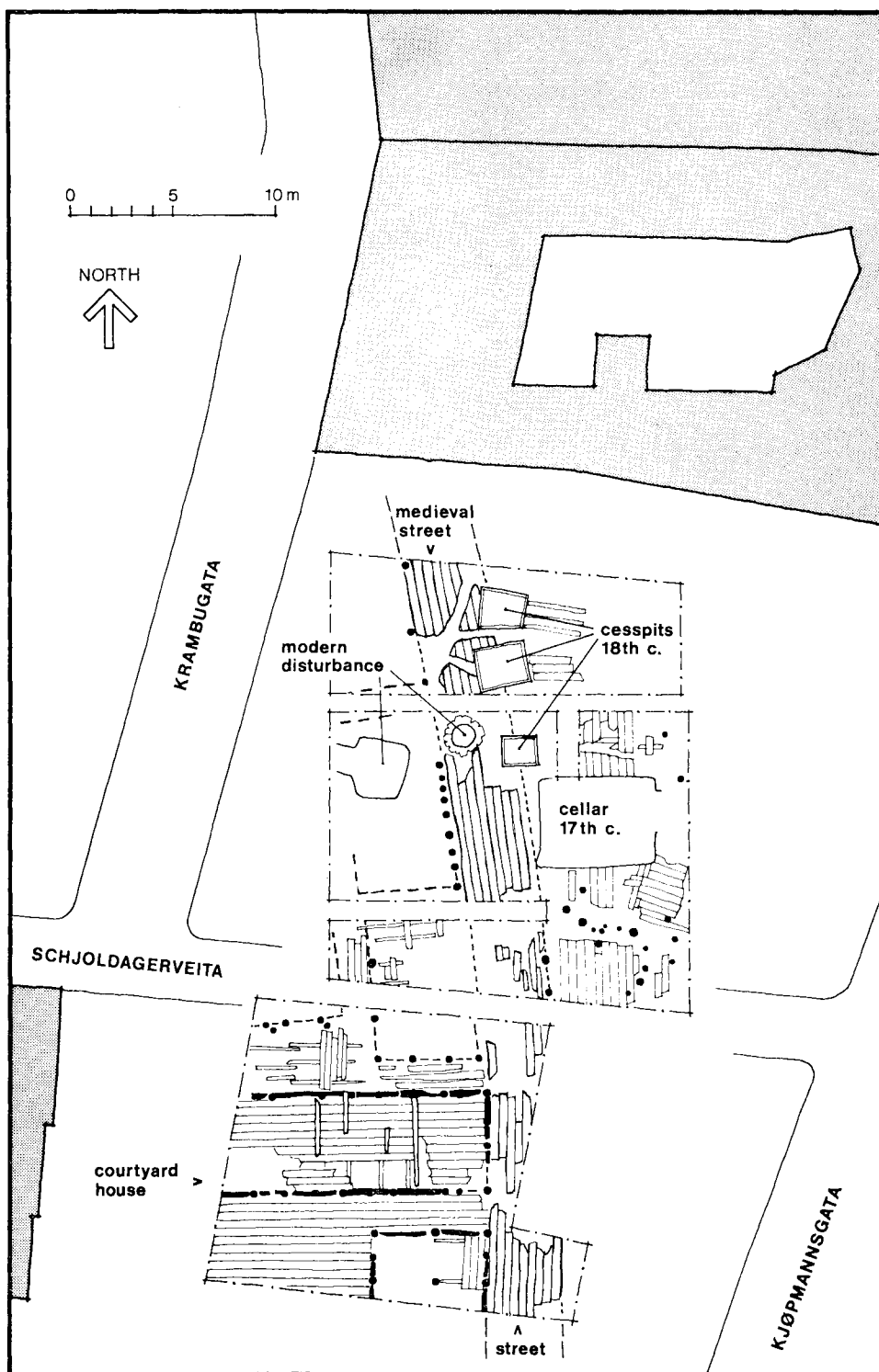


FIG. 7
TRONDHEIM, SITE F
showing the courtyard house and other 14th-century features (p. 20)

but it is just as likely that they were used in street-widening projects, as seems to have happened with the Søndre Gate church and also with another church immediately S. of Vår Frue Church, which formed the basis for the new town square.

SITE F (FIGS. 4, 7; PL. II, C)

Less than 100 m. E. of the excavations in Søndre Gate, and immediately adjacent to the site of the Greyfriars lies Site F, where the new public library is planned. Excavation of the site which covers more than 4000 sq. m. began in 1973.

Here some 40 m. of a wooden paved street have been uncovered and, of the numerous structures which have come to light on either side, the most important so far has been a merchant's house, which was in use in the opening decades of the 14th century. It was entered from the street through a wide passage which led into a large courtyard. Both entrance and courtyard were paved with wood. On the N. side of the courtyard and at right angles to the street, was a long building divided into a series of narrow rooms or stores, each about 2.5 m. wide and all apparently entered from the courtyard. The surviving base of a stair indicated the existence of an upper story, perhaps with the traditional projecting balcony (Norw. *sval*). The E. wing, lying parallel with the street, was at first interpreted as two small shops opening on to the street, but there seemed to be a main entrance into this building from the courtyard. Part of this area had been occupied by a comb-maker.

Further excavation revealed that the area had previously consisted of two properties which had been separated by a wooden-paved passage of the same type encountered on Site E. Alternatively, it may have been one large property divided by a central passage and its redevelopment at the end of the 13th century involved the replacement of a double row of small separate buildings with a single courtyard complex (PL. II, C).

FINDS FROM THE EXCAVATIONS (FIGS. 8-11)

POTTERY AND VESSELS OF SOAPSTONE AND WOOD

The earliest piece of pottery from the excavations is included more for curiosity's sake than anything else, and also as a reminder that one can never rule out the possibility of deliberate interference on any large town-excavation. It is a base-sherd from a Samian bowl, the only piece, as far as I know, to be found in Norway. It lay in a 13th-century context and can possibly be explained as having been introduced as a complete vessel perhaps as part of Viking booty from England or the continent. It could then have been passed on as an heirloom until it ended its life in pieces on a 13th-century rubbish-dump.

Otherwise from the pre-medieval period are a few small sherds of coarse, hand-made pottery which may be from the late post-Roman iron age.

Of medieval pottery, a wide variety has come to light, though not in any great quantity. Most of it is small sherds, since no wells, cesspits or rubbish-pits from the medieval period have yet been found: an excavation by the river-bank would no doubt prove very productive.

The recognizable material includes a few sherds of Pingsdorf-type ware, including at least two sherds of painted pottery, and some larger fragments, including handles, of blue-grey Paffrath-type ware. Saintonge pottery is represented by handles and wall-sherds, and some pieces in a dark buff fabric with a yellow-brown glaze and red spiral decoration are also thought to be French. Andennes ware is represented by several pieces including a large neck fragment, and there are also Dutch imports from Zeeland, including decorated Aardenburg ware, and from Limburg. The English imports include anthropomorphic jugs in both Scarborough and Grimston-type ware (fragments of faces and arms have been found), twisted-rope and strap handles, bridge-spouts and skillets. There is at least one sherd from an aquamanile with scale decoration, and a variety of other sherds with trailed slip and scale decoration, impressed and applied rosettes and stamps. Pottery with a dark green glaze on a brick-red fabric and with yellow-glazed scale decoration enclosed in triangles is thought to be Danish. Unglazed pottery includes shell-tempered ware and was probably imported from England. There is no known local medieval pottery.

In the early medieval layers, soapstone vessels and wooden plates, lids and bowls are more common. A complete wooden bowl came from an early level of Site E, and another with a lug-handle in the form of a cup came from the lowest level of Site R. A variety of soapstone bowl-forms have been recorded which, it is hoped, may produce a typological sequence useful for dating the layers where pottery is lacking. Soapstone cressets are also common.

Soapstone is found locally, and finished soapstone objects may possibly have been exported, to N. England, for example.

COMBS, AND OTHER OBJECTS OF BONE AND HORN

About 300 combs have been found so far, with a number of smaller fragments, comb-blanks and a large amount of comb-maker's waste. Amongst the latter was an unfinished comb-plate to which had been riveted two centre-strips — obviously a trial piece from an exercise in riveting. Another most interesting reject from the workshop area on Site F was a composite single-sided comb which had been completed to the point of ring-and-dot decoration. It had been rejected when the first teeth to be sawn had snapped off, and it was not apparently worth while to take it apart and replace the broken plate.

Over half the combs are single-sided, including an 11th-century example from Site B with a runic inscription, and another with projecting finials. The 13th and 14th-century levels have produced about seventy composite double-sided combs, mostly of the shorter variety, i.e. under 10 cm. Two have double centre-strips with a row of decorative holes down the middle, and several have end-holes where combcase-handles could be pivoted. Nine comb-holders both for single and double-sided combs have been found. There are also six small double-sided combs cut from a single piece of bone or horn, and one example in wood — possibly yew.

Waste material seems to include an amount of whale-bone and I suspect that comb-makers used this as well as antler, though the material has yet to be analysed. Whale-bone was certainly used for a fine weaving-sword which came from

a 13th-century level on Site F, and fragments of others have come from the same area. Loom-weights are usually of soapstone, but from Site T came one made from the frontal bone of a walrus. Other examples are known from medieval sites in Norway, included a decorated example.⁵⁵ Spindle-whorls, needles, garment-fastening pins and styli in bone and horn have also been found in large numbers, as well as the central mechanism from a cross-bow.

Horses, griffins or other fabulous animals are often inscribed on medieval gaming-pieces and Site F produced one which had subsequently been refashioned into a spindle-whorl (PL. III, c). It was found in association with Saintonge pottery. It is interesting to note the details of the jaws with the teeth and lappet, and the twisting of the tail, first in front of the near hind-leg, then behind the far leg, before curling up in front of the body. From an unpublished excavation on the site of the fire-station in Søndre Gate came another gaming-piece decorated with a winged griffin.⁵⁶ The background was deeply carved out, whereas on the 1974 example the background is only crudely hatched. Other gaming-pieces have been decorated with concentric rings or with a ring-and-dot pattern. Of the decorated bone spoons, one is almost certainly Lappish handiwork.⁵⁷

Short runic inscriptions have sometimes been found on odd bits of bone, though from Site F in 1974 came a great many more on pieces of wood. They are usually names or attempts to write out the runic alphabet. A soapstone spindle-whorl from Site K in Kongens Gate seems to have been inscribed with the word for curate or chaplain.

METAL

The commonest metal objects are iron clinch-nails with diamond-shaped roves, probably due to the fact that sections of boat planking were so often used to repair street-surfaces. Because of the soil conditions, iron usually has a powdery blue surface. From Site A came the D-shaped belt-end in bronze-gilt, very badly corroded but apparently decorated in Borre style. Decorated metalwork otherwise is very scarce, and includes the simplest patterns impressed in bronze mounts, book-clasps, etc. Other objects include numerous keys in iron and brass, knife-blades, chain-links, various tools, a steel or strike-a-light, horse-shoes, spurs, etc. Objects for personal adornment include buckles and finger-rings. The only gold ring was a spiral snake-ring found in an 18th-century cesspit. This could easily have been bought by a Norwegian seaman in some eastern bazaar.

LEATHER AND TEXTILE

Leather-work includes scabbards for knives, daggers and swords, mostly undecorated; uppers and soles from many hundreds of shoes; hats, gloves and mittens, as well as bits of other garments including one embossed fragment. All

⁵⁵ Sigurd Grieg, *Middelalderske Byfund fra Bergen og Oslo* (Oslo, 1933), 380 ff.

⁵⁶ Illustrated in Blom (1956), 64.

⁵⁷ There are still Lapps living S. of Trondheim, but it is a matter of dispute whether they have been in central Norway throughout the medieval period or migrated from the N. at the end of the middle ages.

leather is drawn to full-scale as soon as possible after excavation, as it inevitably shrinks to some extent during the conservation process.

Examples of textile and felt have been found at all levels of the excavation, as well as different kinds of rope.

WOOD

The staves and bottoms of numerous barrels and tubs have been recovered, and — especially from the 13th century or earlier — troughs for kneading dough or for use in brewing. The host of other wooden objects includes spoons with shafts decorated in Urnes style, knife-handles, reels and pulley-wheels, tally-pins, a box for writing instruments, toy boats and a toy bow, small carved wooden heads, and the bowls, lids and platters already mentioned. Some objects are engraved with a maker's or an owner's mark. From a 13th-century level came a short stick with divisions painted in different natural colours.

It has also been possible to conserve many structural elements as well as all the early medieval coffins.

CRAFTS, TRADES AND OTHER ACTIVITIES

Of the various trades and crafts carried on in medieval Trondheim, comb-making, leather-working, spinning and weaving are clearly represented. Soapstone-working was also carried on in the city as is shown by a block of soapstone from which someone has started to peck out a round lug-handled bowl. Farm animals were clearly kept in the city, as indeed they still were up to the present century, and the presence of net-sinkers, bark floats and a variety of hooks indicates the prevalence of fishing. Weights have been found made in soapstone, baked clay, lead and from circles of birch bark which were folded in half, filled with small stones and sewn up.

Finally, Trondheim throughout the middle ages was a pilgrim centre, and, as well as a pewter pilgrim's badge and a shell from Santiago de Compostella, moulds have been found for casting badges or pendants no doubt to be sold to visiting pilgrims. The medieval city has, however, yielded extremely few medieval coins, with less than ten from the excavations up to 1974.

ILLUSTRATIONS OF FINDS (FIGS. 8–11)

I have attempted to illustrate finds which are relatively common in these excavations but not elsewhere, or which are a little out of the ordinary: it is by no means a cross-section of the material. All finds from the medieval excavations in Trondheim since 1970 are being recorded in an accession list with prefix letter N. For easy reference, this accession number is given here.

FIG. 8

- a. (N 10713) *Vabein* (or *vadbein*) — usually a reel-like object, but in this case a piece of bone, which was fixed to the gunwale of a boat for running the fishing-line over. Site S, 13th-century context. Cf. FIG. 11, *l*.
- b. (N 10735) Walrus skull used as a weight. Site S, 11th-century.

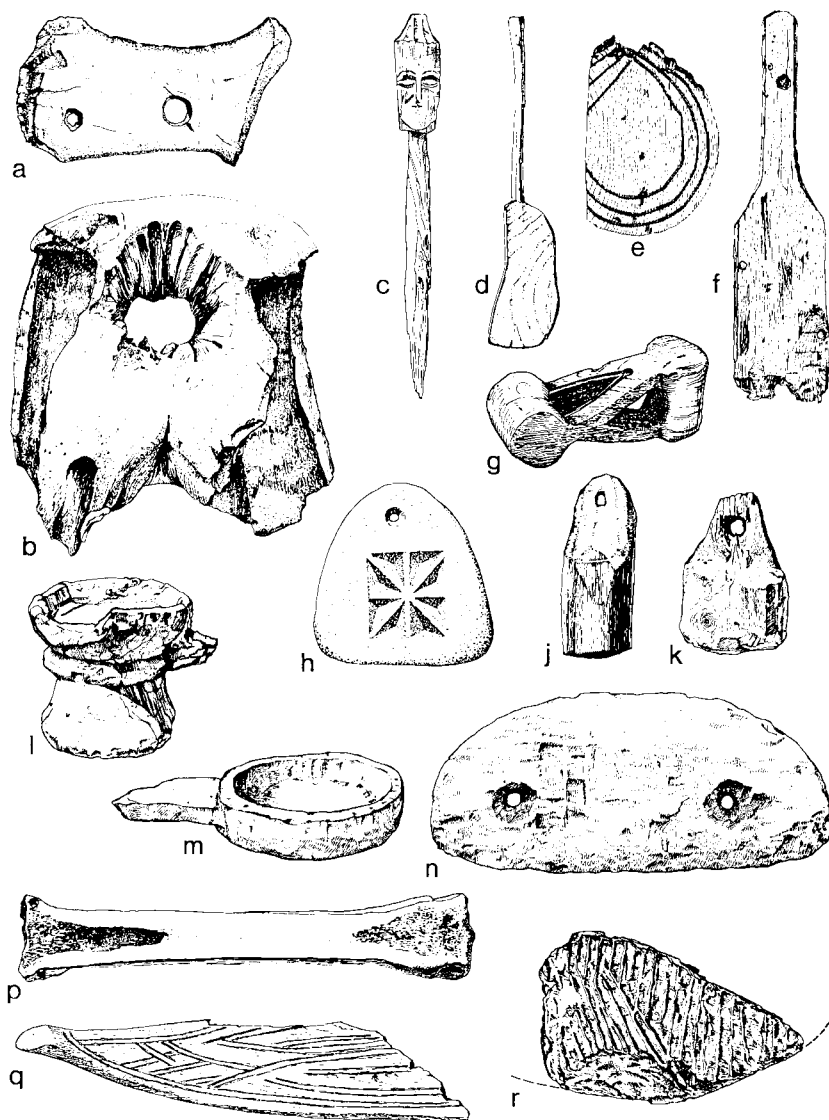


FIG. 8

BONE, STONE AND WOODEN OBJECTS

from Trondheim excavations, described on pp. 23, 25. Sc. 1:4

- c. (N 5092) Wooden peg with the end in the form of a human head. Site E, early 12th-century. Many similar examples have been found of varying sophistication. Some of them may simply have been children's dolls.
- d. (N 5721) Wooden spoon. Site R, probably 14th-century. More than fifty wooden spoons have been found so far, but very few are of this familiar shape. The shaft is usually flat, 2 to 3 cm. wide, and widening slightly at the top, or else it is an elongated oval and convex, curving in the opposite direction from the bowl. In most cases the shaft, and often also the bowl, is decorated with a basket-work pattern or Urnes-style design.
- e. (N 12442) Wooden lid. Site T, 11th-century.
- f. (N 25028) Wooden spatula. Site T, 11th-century. A common object.
- g. (N 26884) Wooden block, one of a pair found together in an early 13th-century context, Site F.
- h. (N 26129) Loom-weight or net-weight in soapstone, decorated with a star design. Site F, 13th-century context. A great number of weights of this form have turned up at all levels, but this is the only decorated example so far. The motif occurs in the 12th-century parts of Trondheim Cathedral and on other local stone churches, fonts, etc.
- j, k. (N 5062 and N 5236) Two wooden weights or floats. Site E, late 11th or early 12th-century.
- l. (N 7209) Lamp or cresset. Soapstone. Site E, 13th-century.
- m. (N 5566) Lamp or cresset. Soapstone. Site R, unstratified. Large numbers of lamps, especially of the latter form, have been found. They are seldom decorated.
- n. (N 11531) Fishing-weight. Soapstone. Site S, 14th-century context. There have been few examples of this form.
- p. (N 10104) Bone ice-skate, made from the metatarsal of a horse. Site T, 11th-century. This is another commonly found object, though more often made from the foot-bone of a cloven-footed animal. The skater propelled himself forward with the help of sticks, rather like cross-country skiing. Several examples still have the leather thongs attached by which they were fastened to the foot, but it is clear from the pattern of wear that many of these objects could not have been skates, but were used for some other purpose, perhaps in the preparation of leather or textile.
- q. (N 28412) End of a wooden ski, decorated with a pattern of incised lines. The under side had a broad groove down the centre. Site F, early 13th-century.
- r. (N 11491) Fragment of a baking-plate in soapstone. Site S, 14th-century. Thin, flat, round or oval slabs of soapstone, between 30 and 60 cm. in diameter, the surface scored with grooves or channels, were used for baking thin crisp *flatbrød* (flatbread). Although it is said that baking was not done very often, baking-plates are a common find at all levels, yet they are apparently never found in Viking contexts.

FIG. 9. COMBS⁵⁸

Nearly 300 combs or parts of combs have been excavated since 1970 and must be regarded as an important part of the material for dating purposes. Double-sided composite combs do not appear before the 13th-century levels and are not illustrated here. Double-sided combs carved from a single piece of bone, antler or ivory are rare from medieval excavations in Norway, although they are not uncommon in town-excavations in neighbouring Sweden and Russia. The example illustrated here (*k*) came from a well which was probably dug in the 16th century and abandoned in 1598. Two

⁵⁸ I am grateful to Axel Christophersen for his remarks on the combs excavated between 1970 and 1973, and to Dr Patricia Galloway for her observations on the comparative material. I have avoided giving labels to the various combs I have illustrated as I understand that Dr Galloway will shortly be publishing an article recommending a common terminology and typology for medieval combs (*Medieval Archaeol.*, forthcoming).

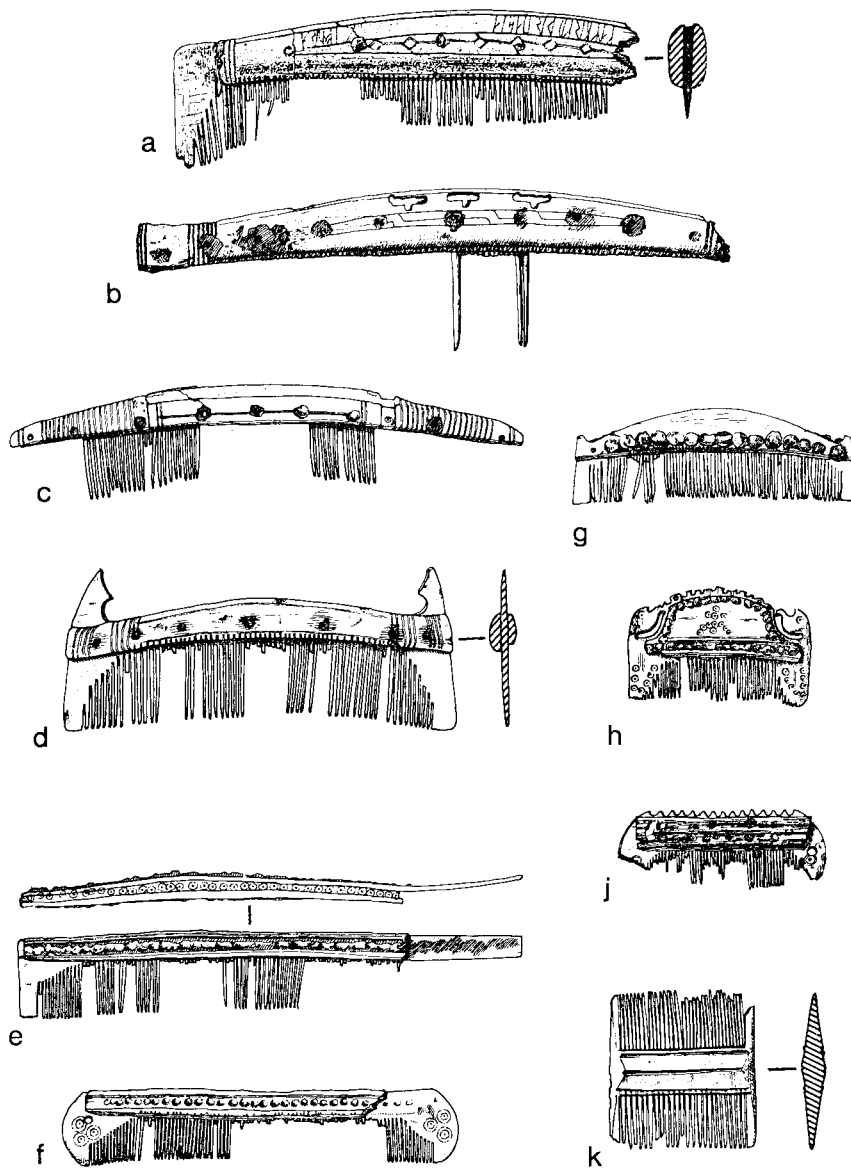


FIG. 9
COMBS FROM TRONDHEIM EXCAVATIONS
described on pp. 25, 27. Sc. 2:5

examples from Site E, however, are medieval and one from site F in what seems to be walrus ivory is probably 11th-century.

Of the single-sided composite combs, the long comb with its wide, bowed rib is clearly the earliest type (*a, b*). In later variations, the upper edge of the comb is straight and the rib is quite narrow. The rib can be high and rounded in section or flat and decorated with grooves and ridges running the full length of the comb. Close-set rivets are another feature of the 13th-century single-sided composite combs (*e*), while rounded ends, often decorated with ring-and-dot, seem to be mid to late 13th-century (*f*).

Parallel with this development in the 12th and 13th centuries are the shorter combs with an increasingly pronounced arched top (*g, h*).

A particular Trondheim variation, probably beginning in the 11th century, is the type with an inlaid metal strip and a metal band at either end of the rib (*c*). The metal inlay is usually missing, but one complete example has been excavated (N 33333 not illustrated).

- a.* (N 9320) Site B, 11th-century. Wide, bowed rib; incomplete runic inscription.
- b.* (N 10059) Site T, 11th-century. Wide, bowed rib with T-shaped cut-outs for the insertion of metal or other material.
- c.* (N 12250) Site R, 11th-century. The wide rib has been fashioned to take a metal strip.
- d.* (N 4547) Site E, 12th-century. Projecting 'finials'.
- e.* (N 4530) Site E, 13th-century context. Flat top; grooved ribs. This type probably appears *c.* 1200.
- f.* (N 9315) Site B, late 13th-century. Straight top; grooved ribs; rounded end-plates with a treble ring-and-dot decoration.
- g.* (N 10586) Site S, early 13th-century. Slightly arched top, with slightly upturned ends.
- h.* (N 16445) Site F, 13th-century. Short comb with high arched top and 'finials' in the form of animal heads. An identical comb which was rejected when the first teeth to be sawn snapped off has also been found, and an almost identical comb, no doubt also made in Trondheim, was found at Herøy in northern Norway.
- j.* (N 4502) Site E, early 13th-century. Short comb; straight top, with toothed decoration along the top; rounded end-plates; grooved ribs.
- k.* (N 10562) Site S, well-filling, 16th-century. Double-sided simple comb.

FIG. 10. METAL OBJECTS

- a.* (N 10019) Key. Site T, 13th-century.
- b.* (N 10637) Key. Site S, grave-filling, 14th-century.
- c.* (N 10006) Key. Site T, late 13th-century.
- d.* (N 10579) Key. Site S, late 13th-century.
- e.* (N 10537) Key. Site S, late 15th or early 16th-century.
- f.* (N 9276) Key. Site B, 14th-century(?).
- g.* (N 23776) Barrel lock. Site F, mid 13th-century.
- h.* (N 11405) Part of a lock. Site S, 11th-century.
- j.* (N 10054) Iron pin with a simple looped eye. Site T, late 11th or early 12th-century.
- k.* (N 10594) Bronze pin (or stylus?). Site S, late 11th or early 12th-century.
- l.* (N 8432) Steel or strike-a-light. Site A, unstratified.
- m.* (N 8532) Carpenter's marking gauge (Norw. *meddrag*). Site A, post-medieval disturbance.
- n.* (N 4566) Decorated bronze strip. Judging by the small holes, this was probably attached to another object, perhaps a book-binding. Site E, late 11th or early 12th-century.

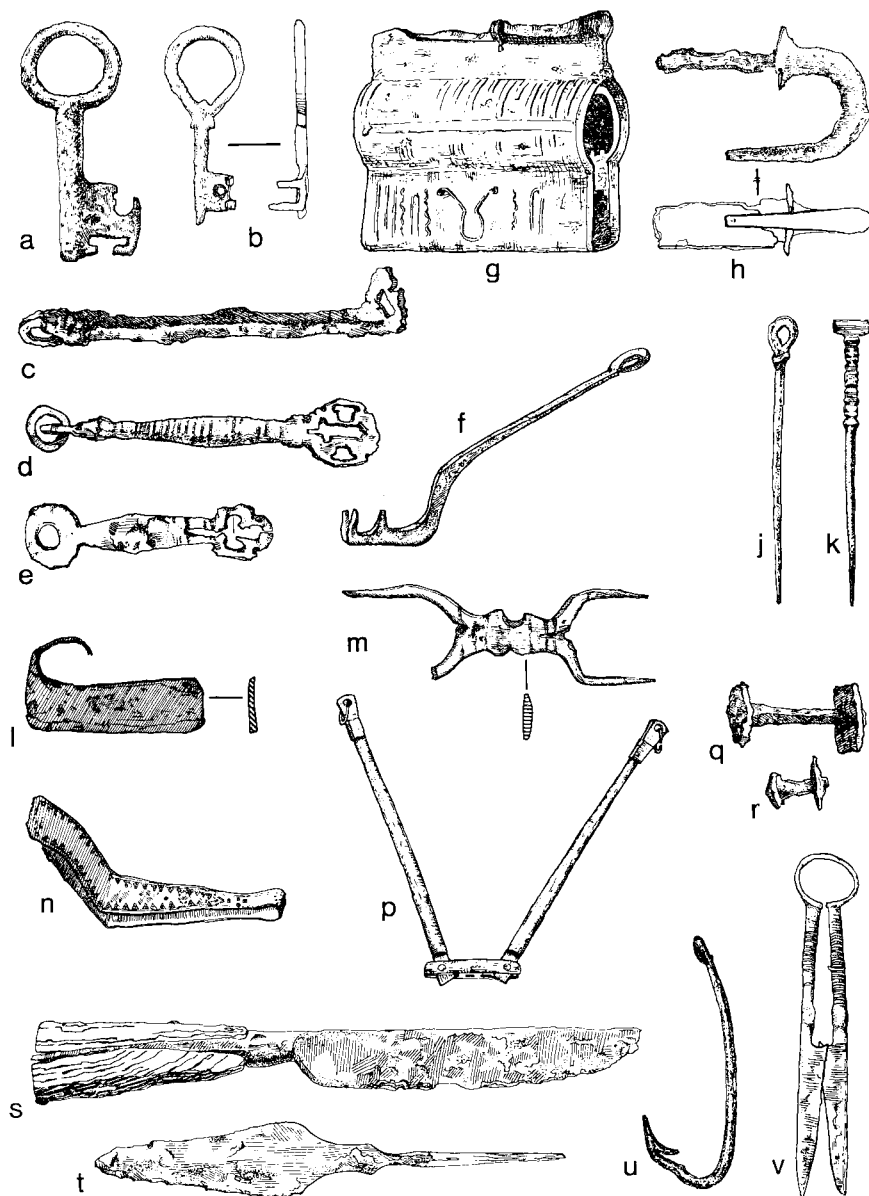


FIG. 10
METAL OBJECTS FROM TRONDHEIM EXCAVATIONS
described on pp. 27, 29. Sc. 2:5

- p.* (N 19505) Folding balance. Bronze. Site F, mid 13th-century context.
q. (N 11285) Boat rivet. Site S, early 16th-century (?).
r. (N 6185) Boat rivet. Site E, 12th-century. Iron boat rivets with diamond-shaped roves are common in all levels. In many cases the riveted boat-boards, still with the caulking in place, have survived.
s. (N 10566) Iron knife with a wooden handle. The flat tang of the blade is at right-angles to the blade. Site S, late 16th or early 17th-century.
t. (N 11249) Iron spear-head. Site S, well-filling, 16th-century.
u. (N 10038) Iron fish-hook. Site T, early 12th-century.
v. (N 10565) Iron shears, decorated with inlaid bronze strip. Site S, well-filling, 16th-century.

FIG. II. OBJECTS OF BONE, ANTLER AND WOOD

- a.* (N 10533) Bone spoon. Shallow bowl, lying in the same plane as the shaft. Late medieval type. The decoration, while known on medieval objects, is also fairly common on Lappish handiwork. Site S, well-filling, 16th-century.
b. (N 28215) Head of a bone pin. Some half-dozen of these pins with a large decorated, triangular head have been found. I have assumed them to be dress-fastening pins, and that the hole, which is secondary to the decoration, was for a cord or leather thong by which the pin could be kept more or less permanently attached to the garment. In this example, however, the shaft has broken and the point has been resharpenered, which suggests that the object had some other function. The decoration is clearly derived from a late Viking art style. Site A, 12th or 13th-century.
c. (N 10107) Bone toggle. Toggles with a central hole are more usual. Site T, early 11th-century.

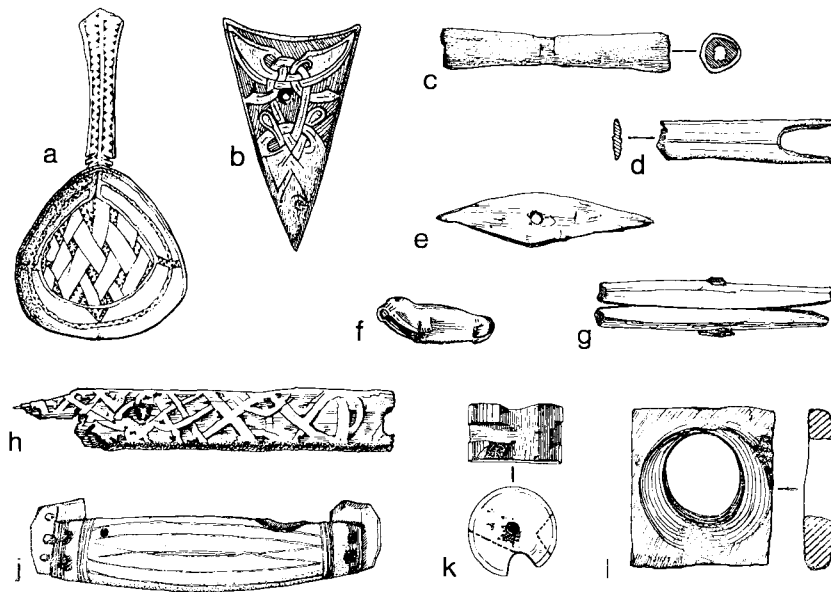


FIG. II

BONE, ANTLER AND WOODEN OBJECTS

from Trondheim excavations, described on p. 29 f. Sc. 2:5

- d. (N 10516) Yarn twister, bone. Site S, 16th-century context.
- e. (N 10682) Thin bone plate in the form of a pointed ellipse. This is a not uncommon object at all levels, whose function remains unclear. It may be a rough-out for an object, or part of an object. It occurs both with and without holes. Site S, unstratified.
- f. (N 28915) Model of a walrus with long tusks and moustache. Probably carved from walrus tooth or ivory. A similar object was found at Sandnes, Greenland,⁵⁹ but is considered to be Nordic and not Eskimo handiwork. Walrus would also have been hunted along the Norwegian coasts. Site F, 13th-century.
- g. (N 10624) Clamp, consisting of two pieces of worked antler joined together with an iron rivet. Others, or parts of others, have been found: they are presumably part of the equipment of a particular craftsman. Site S, 11th-century.
- h. (N 4551) Small wooden fillet, with a raised interlaced pattern in Urnes style. Site E, 12th-century.
- j. (N 4548) Comb-case in bone or antler. Site E, 12th-century context.
- k. (N 10575) Part of the trigger mechanism from a cross-bow. Horn. Two others have also been found. Site S, 13th-century context.
- l. (N 5424) Part of a *vabein* (or *vadbein*), i.e. a reel consisting of a cylinder between two plates over which fishing-line is drawn. Site R, unstratified. Cf. FIG. 8, a.

CONCLUSION: A RE-EVALUATION OF THE CITY'S EARLY DEVELOPMENT

As so often happens, the recent excavations in Trondheim have tended to emphasize what we do *not* know about the medieval city, rather than confirm earlier hypotheses about its foundation and early development, especially as a royal city in the 11th century. Particularly puzzling are the sites where Olav and Magnus are supposed to have built their palaces: one would expect them to have chosen the most dominating part of the peninsula, where the Cathedral now stands.

The replanning of the city in 1681 removed most traces of the medieval city, and it is difficult to use the pre-1681 maps to reconstruct the city at the time of the Reformation a century and a half earlier — let alone in the 11th century. Yet these maps contain topographical details which tend to have been neglected. Land-routes in the Trondheim region seem to have been as important as sea-routes — the sagas are full of people arriving or leaving the city by foot or on horseback. The western route into the town over the neck of the peninsula would surely have been one of the most important. On the 17th-century maps it is deflected in the middle of the peninsula (on the site of the present market-square) — perhaps due to an earlier monastic or church property, but the road then opens up as an elongated triangle along the S. side of Vår Frue Church. On comparison with other medieval towns, this would be the market area, not some undefined area in the NE. of the peninsula. The main route at this point is crossed by two roads running N. and S., and then goes down to the river. Moreover, it is here that a

⁵⁹ Aage Roussell, 'Sandnes and the Neighbouring Farms', *Meddelelse om Grønland* (*Researches into Norse Culture in Greenland*), LXXXVIII (Copenhagen, 1936), no. 2, 123-4.

regular market-square is laid out later (using a disused church-site), and even Cicignon's drastic replanning does not move it very far.

I suggest that this was the heart of the town, with Vår Frue Church as the main town church: it is not only by far the largest, but also the only surviving medieval church. The royal and ecclesiastical centre lay on the higher ground to the S. — the Cathedral and Archbishop's Palace still stand here — and there seems to be little reason for suggesting that the king's palace lay anywhere else. The excavation of the church in Søndre Gate has so far failed to confirm the traditional theory that this was part of Magnus's palace-complex. For that matter, there is no reason why the Thing-place did not originally lie in this southern part of the town: it is said to be held by the Cathedral in the later middle ages, though it has never been suggested why or when it was moved.

Hitherto, the interpretation of Trondheim's early history as a king's town has unavoidably been based on the sagas, but hopefully, the current excavations will help to redress the balance. Care must be taken in their interpretation not to try to fit the results to a preconceived but hypothetical picture, as has happened with archaeological evidence previously, nor to reject the earlier theories out of hand. Snorri in the 13th century was surely as eager to connect as many sites and buildings with St Olav, as historians and archaeologists were during the National Romantic Movement of the 19th century, though *their* motives were political, not religious.

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